

STRATEGIC POLICY RESEARCH

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Economic Perspectives on Access Charge Reform

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I. Introduction

As the Commission appropriately observes in the Introduction to its important *Notice*,¹ access pricing and universal-service reform are truly urgent issues for public policy at this historic juncture in the evolution of the Nation's telecommunications enterprise. Reforms are sorely needed to promote efficient competition and permit full realization of the objectives specified in the Telecommunications Act of 1996. At the same time, competition is rapidly rendering the current access-pricing regime unsustainable and the current scheme for universal-service support untenable.² Change is a certainty and it will likely have untoward consequences unless policymakers come effectively to grips with fundamental problems facing the industry.³

In these Comments, we respond to many of the questions the Commission has posed regarding the specific identity of economically sensible access pricing reforms. We begin by briefly summarizing the various public-policy rationales for efficiency-enhancing reform. In general, political expediency cannot justify the pursuit of bad economic policies. Nevertheless, because what is infeasible cannot be economically optimal, account must be taken of the political imperatives perceived by public policymakers. We have thus tried to identify policies that are likely to improve economic efficiency substantially, while limiting adverse political consequences; *i.e.*, that embody sound economics with allowance for political realities. In particular, while we believe at least some residence SLC increases should be part of any genuine reform program, there are second-best alternatives that can help us move toward more efficient outcomes.

Before proceeding, we should note our own policy agenda, which we regard (and believe others will regard) as economically unexceptionable. In our view, it makes little sense to will the competitive means for, and then adopt a crazy quilt of regulatory policies designed to prevent the

¹ Federal Communications Commission, *In the Matter of Access Charge Reform, Price Cap Performance Review for Local Exchange Carriers, Transport Rate Structure and Pricing, and Usage of the Public Switched Network by Information Service and Internet Access Providers*, CC Docket Nos. 96-262, 94-1, 91-213 and 96-263, *Notice of Proposed Rulemaking, Third Report and Order, and Notice of Inquiry*, adopted December 23, 1996, released December 24, 1996.

² The Federal Communications Commission's (FCC's) proposed rules for implementation of the Telecommunications Act of 1996 promise to exert even greater pressure on the existing regime, which is already under substantial duress.

³ If the consequences of impending change were uniformly salutary, government intervention might not be justified. Unfortunately, there are legitimate reasons for concern about the economic consequences of impending change and, hence, a genuine need for prudent reform.

realization of, economically efficient outcomes.⁴ It surely makes little sense to adopt (or maintain) regulations which cause inefficient distortions, while simultaneously taking steps to allow or promote competition to remove such distortions.⁵ In our view, public policy should *consistently* promote efficient outcomes. A schizophrenic policy that seeks simultaneously to promote and thwart efficient outcomes cannot be defended on rational economic grounds.

In particular, a world in which interconnection elements are priced at cost (and fungible in terms of production of different outputs) places very severe constraints on what the government can (at least consistently or effectively) otherwise insist or require. In such a world, something/anything approaching efficient outcomes requires that costs be accurately classified on the basis of their traffic sensitivity/insensitivity and that incumbent exchange carriers be afforded substantial pricing flexibility to recover their forward-looking as well as any legitimate legacy costs. Likewise, support for internalization of universal service externalities requires a rationalization of the subsidy scheme embodying explicit identification of subsidies and broader-based means of support. Any failures in the latter regard merely intensify the strength of the already powerful economic rationales that exist for affording exchange carriers greater pricing flexibility to permit necessary cost recovery.

Unbundled interconnection elements available at cost, on the one hand, imply the inability to sustain an uneconomic structure or level of access charges and, on the other hand, the need for substantial *deregulation* to permit carriers the flexibility they need to conform their access charges with relevant efficiency criteria consistent with full cost recovery. It is only through a "market-based" approach that full exploitation of all relevant information on prevailing local conditions of supply and demand can be accomplished. The government is, in truth, incapable of "prescribing" efficient outcomes other than at the grossest levels.

⁴ We interpret this contradictory stance to be almost precisely the position some others have espoused. Cf., for example, Lisa Rosenblum, "White Paper on Rate Restructuring," reprinted in *Washington Telecom Week* (Vol. 5, No. 15), April 12, 1996.

⁵ The notion that government should promote competition by promoting inefficiency not only confuses and misconstrues means and ends, but is also economically objectionable on its face.

II. Pricing Problems

In thinking about access pricing issues, it is useful to distinguish between problems that arise because of a defective *structure* of charges and those that arise because of an inappropriate overall *level* of charges.

As the Commission accurately describes in its *Notice*, both types of problems loom largely under current pricing arrangements. In particular, interstate switched access charges far exceed economically efficient levels.⁶ This unfortunate situation is made worse by a rigid and uneconomic pricing structure. The combination of an inappropriate price level and a defective pricing structure is worse than either problem evaluated on its own. Were a better-designed pricing structure implemented, less strain would be placed on the pricing system by the amount of the cost burden that needs to be recovered in access charges.⁷ Similarly, were there reductions in the cost burden to be recovered (*e.g.*, as a result of SLC increases), there would be less strain on the charging regime and more degrees of freedom in designing a viable system of charges.

Current access pricing suffers serious economic defects. As the Commission notes, it attempts to recover usage-insensitive costs (whether of access or other services and whether currently or historically incurred) through usage-based charges. It does not adequately reflect variations in demand elasticities or cost variations among different end users. Under the current scheme, total charges to many end users exceed the costs of effective substitute alternatives. Historically, the primary alternative to switched access has been special access.⁸ Facilities-based CLECs increasingly

⁶ Our comments focus largely on interstate pricing. Our criticisms and analysis, of course, apply even more strongly to intrastate pricing in many states.

⁷ This point is important because if the Commission is unable to come completely to grips with universal service subsidy problems or problems associated with full recovery of legacy costs, it suggests that pricing flexibility can supply a useful backstop remedial step. With greater flexibility, carriers may be able to load recovery burdens in ways which will actively enable them to achieve recovery; *e.g.*, geographic deaveraging and volume discounts, as well as contracts with individual end users. Such a pricing structure would provide more degrees of freedom to design a viable rate structure.

⁸ Comparison of originating and terminating access minutes provides some indication of the amount of substitution that has already taken place. In February 1995, originating minutes were 14.7 billion, while terminating minutes were 19.8 billion. (*See Monitoring Report, CC Docket No. 87-339, May 1995*, prepared by Federal and State Staff for the Federal-State Joint Board in CC Docket No. 80-286, p. 214 and Table 4.1.) These figures are consistent with 26 percent substitution of special access for originating switched access. Actual substitution may exceed this amount for two reasons: 1) Special access is used for some terminating traffic; and 2) Originating international traffic far exceeds terminating international traffic.

(continued...)

offer a third alternative to both business and residence customers. Now the ability of competitors to offer effective substitutes by assembling unbundled piece-parts supplied by LECs will further increase the stress on the existing structure of charges. As more and more end users substitute away from LEC switched access, the current access-charging system will become less and less viable. The remedy for this type of tariff-design defect is to recover more of the relevant cost burdens through usage-insensitive charges, with due consideration afforded to variations in relevant demand elasticities and variations in relevant costs (geographic or otherwise).⁹

The current level of charges also causes very serious problems because rate levels exceed those necessary to recover access-relevant costs efficiently. Current rate level anomalies primarily reflect attempts to recover a variety of costs *in addition to* actual costs of providing access service; viz., notably loop and associated NTS switching costs, costs of the existing subsidy support program, historical cost burdens arising from the failure of regulators in the past to depreciate plant and equipment at economic rates. In broad outline, the economic remedies for these types of problems are no secret:

- Recover more costs directly from cost causers;
- Rationalize the subsidy-support scheme; and
- Adopt a charging regime better designed to succeed in actually recovering costs (*viz.*, one capable of exploiting in timely fashion information about variations and changes in demand conditions and relevant variations and changes in costs of production).¹⁰

III. Benefits of Reform

Problems with the structure and level of access charges engender two types of economic inefficiencies: (1) rates of service utilization are restricted below efficient levels with associated

⁸ (...continued)

Some use of special access is economically efficient. Many special-access lines are, however, lightly used and therefore likely wasteful of loop facilities. Such usage is encouraged by the inefficient structure of access charges.

⁹ The viability of any particular charging structure in the face of competition will increasingly turn on the ability to customize service offerings to particular customers and customer classes — hence the need for greater pricing flexibility.

¹⁰ Pricing flexibility assumes particular significance to the extent that revenues are required by regulation to recover cost burdens in addition to costs of access. Requiring the end without ordaining adequate means is capricious and disingenuous, and could constitute an illegal taking.

losses of economic welfare;¹¹ and (2) incentives are created for inefficient competition with associated welfare losses from technically inefficient production (*i.e.*, resource waste).

Policymakers need to take careful account of the potentially *mixed* economic welfare consequences of competition in the presence of regulatory mispricing. Regulatory mispricing provides a pricing umbrella under which competitive entry, even that undertaken by technically inefficient producers, may succeed.¹² The economy gains from lower prices, but is simultaneously harmed to a greater extent because inefficient production wastes resources, *i.e.*, utilizes resources that could produce other sources of consumer utility.¹³ Losses from technically inefficient production may well exceed — indeed are likely to exceed¹⁴ — welfare gains from more efficient pricing by competitors. This is not an argument against competition; it is an argument against regulatory mispricing that *prevents* efficient competition and encourages inefficient competition and waste of scarce resources.

Regulatory mispricing in the *presence* of increasingly effective competition has other important implications for economic welfare. While technically flawed and highly imperfect, regulatory mispricing has, for the most part, not been ill-intentioned. Telecom regulators have principally been motivated to use the price mechanism as a means to internalize consumption externalities (*i.e.*, universal service) and, thereby, to promote economic efficiency. With the spread of increasingly effective competition, the ability to use the price mechanism, at least as currently constituted, to promote universal-service objectives becomes increasingly constricted. The ability successfully to levy (what is, in effect) a tax to support adequate provision of a public good is obviously limited by the supply of effective means for tax avoidance.

Without pricing reform, two adverse consequences for internalization of universal-service externalities appear likely:

¹¹ There may also be adverse competitive consequences to the extent inflated charges limit the extent of the market and, hence, the attainable division of labor, or otherwise distort competitive resource deployments.

¹² By the same token, subsidies which reduce prices below relevant costs also make competition on the merits difficult.

¹³ We have previously alluded to the significant economic waste embodied in existing service bypass arrangements. *See* footnote 8 *supra*.

¹⁴ In order of magnitude, technical efficiency effects are usually first-order effects, while allocative welfare effects are usually second-order.

- (1) Support for universal service will decline as consumers switch to “non-taxed” sources of access service supply; as a result, currently subsidized prices will rise and the number of subscriber disconnects will likely increase;¹⁵ and
- (2) The cost of universal service support will *rise* as suppliers of future universal services demand a risk premium to compensate for the increased likelihood that government will renege on its commitments; that belief will be well-founded if government has failed to take adequate steps to fulfill its historical commitments in a precisely analogous context.¹⁶

There are, thus, at least three compelling public-policy rationales for pricing reform:

- (1) A potentially large expansion of economic welfare from more efficient pricing arrangements;
- (2) Minimization of incentives for uneconomic resource deployments and, relatedly, increased scope for efficient competition; and
- (3) Maintenance of high subscriber penetration levels and increased scope for deployment of advanced universal public services.

As discussed below, pricing reforms under which *marginal* usage is priced much closer to marginal cost, consistent with full cost recovery,¹⁷ could easily produce massive economic welfare gains on the order of several *billion* dollars per year with comparably impressive macroeconomic benefits. Another important benefit of efficient prices is that they provide accurate signals for investment decisions. They discourage uneconomic resource deployments and resource waste; *viz.*,

¹⁵ There is an intellectually puerile debate over the question of whether local service can be properly regarded as being subsidized if rates for local services exceed their incremental costs. For the viability of the firm, the relevant issue is not recovery of incremental costs. For internalization of the universal-service externality, the operationally relevant question is whether, as rates are rebalanced, there will be any subscriber disconnects.

¹⁶ The old adage “fool me once, shame on you; fool me twice, shame on me” applies. It would be highly ironical were the government to abrogate its historical commitment to afford regulated firms a fair opportunity to recover their costs at the same time that it seeks telco “funding” for an expanded menu of universal services. Just as lenders charged medieval kings a premium on their borrowings to account for the likelihood that the currency would be clipped during the pendency of a loan’s term, the cost of capital for investments in new universal services will adjust to discount properly for the likelihood of government’s subsequent abrogation of its commitments.

¹⁷ As we subsequently remark, multipart tariffs, in principle, permit recovery of traffic-insensitive cost burdens while simultaneously confronting customers with effective rates for *marginal* usage prices closer to marginal costs. Pricing all usage simply to recover marginal costs may encourage more efficient utilization rates, but is inconsistent with full cost recovery and the economic viability of the regulated offerings as well as the subsidy scheme which imposes additional costs.

sacrifice of other valued sources of consumer utility. They thereby promote efficient competition and wealth maximization. At the same time, efficient pricing may allow the permissible scope of competition to be expanded without inefficient cream-skimming. With an efficient pricing scheme, there is little cream to be skimmed and the protection of public-interest equities does not rely on protection of an inefficient pricing scheme. Finally, suitable pricing reforms can “bullet-proof” the viability of the regime for universal-service support. They can thereby help ensure efficient internalization of universal service externalities and adequate funding for desired public services. At the same time, affording carriers greater pricing flexibility can ensure that any efficiency/usage distortions caused by the need for a wedge (to support social objectives) between prices and costs are minimized and thus that economic welfare is maximized consistent with fulfillment of social objectives.

IV. Some Relevant Historical Background

Competition constrains pricing; that is largely the point of competition. In the post-World War II era, substitutes for conventional public-switched network product offerings have progressively become more effective and more widely available. This development has progressively constrained the feasible set of telecommunications service prices. When satisfactory supply alternatives were virtually nil, policymakers had a great deal of discretion in setting prices. They possessed substantial freedom to disregard economic conditions of supply and demand and to respond to political pressures and demands in setting prices. While departing from norms of economic efficiency, the resulting set of prices was nevertheless economically viable. Over time, however, the supply of competitive alternatives has grown. That growth has represented a response partly to incentives afforded by uneconomic regulatory pricing, partly to procompetitive government policies, and partly to technical advances expanding feasible substitute supply alternatives. As a result, the scope for regulatory discretion in price setting has been substantially constrained. Regulators still retain the *legal* authority to choose among a wide range of pricing policies, but the range of choices that can be reasonably anticipated to lead to acceptable outcomes has progressively

shrunk. With the advent of unbundled service elements made available at cost, the range of discretion has effectively disappeared.¹⁸

Under fully effective competitive conditions, telecommunications prices are determined by economic conditions of supply and demand. In these circumstances, if economic efficiency *requires* departures from competitive outcomes (*i.e.*, if the competitive equilibrium is not efficient because of, say, failures to internalize relevant network externalities efficiently), the government is necessarily compelled to intervene to achieve its ends in more conventional ways. For example, it may tax and spend explicitly to achieve its goals. Any scheme of implicit taxes and subsidies would be subject to substantial (if not complete) undermining by competition.

The collapse of the historical regulatory pricing structure in telecommunications can be easily mapped and projected into the future. As has frequently been remarked, the *Above 890*, *Carterfone* and *Execunet* decisions¹⁹ were the watershed legal determinations that commenced the unraveling of the historic regulatory rate structure. Prior to these landmark decisions, competitive alternatives to the public-switched network were quite limited and available to only a few very large users with specialized needs. Had the regulatory pricing structure admitted of greater flexibility, it may well have been possible to discourage exploitation of even these (perhaps technically wasteful) alternatives. The amounts of traffic involved were, however, relatively small. Their loss had little if any significant consequences for the viability of the regulated rate structure.

The early key legal decisions played a role in telecommunications pricing analogous to the Civil Aeronautics Board's decision to authorize so-called "part-charters" in air transportation — a comparably significant "great-unraveling" decision. Historically, chartered air transportation played a role similar to dedicated circuits (*e.g.*, private lines or more recently, special access) in telecom-

¹⁸ Indeed, in the absence of barriers to retail competition, it is not clear what economic basis there is for continued regulation of retail offerings. Similarly, to the extent interconnection offerings are fungible across different outputs, there really appears to be little basis for continued regulation of access, *per se*.

¹⁹ *Allocation of Frequencies in the Bands Above 890 Mc*, 27 FCC359 (1959) *recon. denied*, 29 FCC 825 (1960) (private companies allowed to establish microwave communications systems); *Use of the Carterfone Device in Message Toll Telephone Service*, 13 FCC 2d 420 (1968) (carrier tariffs limiting attachments to the network unlawful); *MCI*, 18 FCC 2d 953 (1969), *recon. denied*, 21 FCC 190 (1970) (MCI authorized to construct an alternative *common carrier* microwave system); *MCI Telecommunications Corp. v. FCC*, 561 F. 2d 365 (D.C. Cir. 1977), *cert. denied*, 434 U.S.1040 (1978) (Execunet I); *MCI Telecommunications Corp. v. FCC*, 580 F. 2d 590 (D.C. Cir. 1978), *cert. denied*, *United States Independent Tel. Assoc. v. MCI Telecommunications Corp.*, 439 U.S. 980 (1978) (Execunet II) (Appeals Court overrules FCC's rejection of MCI's Execunet shared private-line service capable of supplying an economic substitute for AT&T's switched long-distance service).

munications. Just as dedicated circuits afforded an economical competitive alternative for telecommunications users with sufficiently large and geographically specialized demands, chartered aircraft supplied an effective competitive substitute for scheduled service for some specialized air transport demands (e.g., group vacations). Just as *part*-charters put substantial scheduled traffic demand at competitive risk,²⁰ the key legal decisions (in telecommunications) that allowed economically effective *sharing* of private-line networks resulted in the supply of an attractive alternative for AT&T's high-priced switched long-distance service for a potentially very large number of customers.

As the Commission observes in its *Notice*, the pricing implications of these important legal decisions were subsequently manifest in the ENFIA tariff. The ENFIA tariff was explicitly *discriminatory* — collecting higher charges for ordinary business line services used to supply interstate access services than other business lines. Through the use of price discrimination, the FCC was able to sustain (albeit to a lesser extent than previously) the subsidy to local service built into AT&T's rate structure. In the absence of this price discrimination, the subsidy structure would clearly have been unsustainable because traffic would have naturally migrated to the lower-priced service alternative based on regular business-line rates. It is interesting and relevant to remark the extent to which airlines also have perfected various means of price discrimination to permit efficient recovery of high fixed costs under increasingly competitive conditions. In particular, business travelers typically pay higher prices, while customers with more discretionary demands (e.g., vacationers) are often able to avail themselves of substitute offerings and discounted prices.²¹

Subsidy schemes can work well only if demand for the "taxed service" is fairly inelastic. The relevant demand in this regard is the demand facing an individual firm:

- (A) If demand is inelastic, customers will continue consuming the taxed service after the tax is imposed. The tax revenues will then be collected, while causing little economic loss in the form of reduced usage.

²⁰ Regulatory authorization of part-charters meant that travel agents could assemble charter flights consisting of many different groups rather than a single group. Obviously for certain types of travel demands (vacations, in particular), there may often be little difference between a ticket on a scheduled flight and one on a part-charter flight. Similarly, there may be no perceptible difference between a long-distance call completed over the public-switched network and one completed over a *shared* private-line network.

²¹ The situation in telecommunications is, of course, reversed — larger business customers are often better positioned to capitalize on alternatives.

- (B) If demand is elastic, customers will substantially reduce their consumption. They will either seek alternatives or entirely forego consumption of the service. The result is economic loss (as consumers reduce rates of usage from their preferred levels) and a disappointing level of tax revenue collection.

It goes without saying that (A) is a success for the subsidy scheme, while (B) is a failure.

Demand elasticity measures the extent to which customers are price sensitive, which largely turns on the availability of substitutes. Price discrimination by airlines works precisely because business travelers are comparatively price insensitive. A business person frequently has little discretion in terms of travel schedule requirements and often needs to book passage on short notice. He/she frequently cannot utilize lower-priced offerings. Business travelers choose among airlines largely on the basis of convenient travel times, frequent-flier plans, and other considerations, apart from (or in addition to) price. Circumstances frequently preclude their use of, say, advance-purchase, standby or other discount fare offerings. Price discrimination cannot work well if customers of the taxed service are price sensitive and possess good substitutes.

In telecommunications, the most heavily-taxed service is switched access. Unfortunately, demand for switched access by many end users, especially larger ones, is and will increasingly become price-elastic. Under these circumstances, overcharges contain the seeds of their own destruction. Under ENFIA and the access charge regime that replaced it after the Bell System divestiture, strong incentives remained for creation and exploitation of cost-effective substitutes for LEC switched access.²²

Initially, large end users constructed their own facilities or substituted more economically priced special-access/private-line services for switched access.²³ Subsequently, new competing access providers began to deploy their own fiber facilities and to supply competitively effective substitutes for special and then *switched* traffic. These carriers initially naturally targeted their competitive efforts where business locations are concentrated and, hence, where telecommunications traffic is concentrated. This initially focused supply of competing services is becoming increasingly

²² These incentives were, of course, the same ones which evoked long-distance competition in the first place.

²³ To condition the charging regime against this type of competition, the FCC sought to perfect its price discrimination arrangements by adopting a transparently *noncost*-based system of asymmetrical charges. Use of bypass alternatives is more difficult for terminating as compared with originating access. Thus the Commission set charges higher for the former than the latter.

widespread and, of course, now we have the *coup de grace* in the form of unbundled elements made available at cost-based rates. Existing pricing arrangements are thus essentially incapable, on a forward-going basis, of recovering the costs they are, in principle, supposed to recover (*viz.*, in particular, costs of providing access, legacy costs and assigned portions of loop and other NTS costs).

An additional historical perspective also warrants attention. The *Carterfone* decision not only resulted in the creation of competitive substitutes for long-distance services, but it also, in effect, resulted in local-service competition. The technology that was a key component in creating competing (public and private) long-distance networks also supplied a way (through the use of PBXs) to economize on access lines and create alternative local-area networks. It is important to note the extent to which these possibilities increasingly constrain the ability to recover costs through *rebalanced* rates. The greater the elasticity of supply of competitive alternatives for local services, the more limited is the ability to recover all relevant cost burdens (*i.e.*, including legacy costs) from charges for such services from price-sensitive customers. Today, there are competitive *local* networks. In addition, as we have repeatedly emphasized, the Telecommunications Act of 1996 seeks to promote local competition with cost-based rates for unbundled local-service inputs. The Act also mandates that discounted retail offerings be made available for resale. In this world, the ability of LECs to recover the costs that the existing rate structure is supposed (or at least currently conceived) to recover has become highly questionable.

If competition were sufficiently effective to constrain prices to costs, recovery of historical cost burdens or those growing out of universal-service support would obviously be impossible. The reason is simply that historical burdens and the costs of universal service subsidies are not incurred by competitive entrants. Consequently, such burdens and costs are not included in entrants' prices. Failure of LECs to recover such costs could nevertheless obviously have untoward, not to mention politically unacceptable, consequences. The need for a "bullet-proof" universal subsidy support scheme is recognized in the new Telecommunications Act. The Act calls for explicit support by all market participants, not just the incumbent LECs. Equally compelling concerns are associated with recovery of historical cost burdens. Indeed, as previously noted, recovery of historical burdens has important implications for the supply of universal services.

Government has an important stake in permitting regulated firms to recover prudently incurred costs. It needs to assure investors that investments approved and mandated by government

under regulation will not, in effect, be confiscated. To the extent that government does not afford a reasonable opportunity for recovery of costs, the lesson for future investors will be that government cannot be trusted to honor its commitments. The result will be that government will find it increasingly difficult to achieve its policy objectives and will be able to do so only at a cost premium. As Professor James Q. Wilson has observed:

Property and contracts express our society's commitment to equity as well as to investment. Government will infringe on property and contracts, sometimes for good reasons and sometimes for bad ones. When it does so on the basis of a promise to allow the cost of that infringement to be recovered, it has an obligation to honor that promise. A healthy economy and a healthy society require that the government keep its word — even to utilities.²⁴

V. Quantitative Magnitudes

The current access-price structure embodies two different kinds of support mechanisms: direct and indirect. The much more quantitatively significant *indirect* cost support derives from the recovery of NTS costs via per minute charges for access and toll services. In an earlier study,²⁵ we conservatively estimated that the level of support (direct and indirect) was \$20 billion per year at 1991 levels of costs and demand for the combined federal-state jurisdiction. We observed then that virtually this entire level of support is vulnerable to competition and thus unsustainable. We estimate that the implicit support now amounts to almost \$24 billion per year (see calculation in Table 1).

²⁴ "Don't Short-Circuit Utilities' Claims," *The Wall Street Journal* (August 23, 1995, p. A12).

²⁵ Calvin S. Monson and Jeffrey H. Rohlf, *The \$20 Billion Impact of Local Competition in Telecommunications*, prepared for the United States Telephone Association, July 16, 1993. The contribution embodied in the existing rate structure was estimated as the difference between revenues and incremental costs of access and toll services.

Table 1
Switched Services Amount at Risk Calculation
(Conservative Estimate)

IntraLATA Toll Revenues (1995)	
\$ 9,229,980,000	Long-distance message revenues (class A)
23,312,130,000	IntraLATA toll calls completed (originating)
186,497,040,000	Equivalent billed access minutes (4 min./call)
\$0.3959	Average intraLATA toll message revenue per call
\$0.0990	Average intraLATA toll message revenue per minute of calling (4 min./call)
Interstate Switched Access Revenues (1995)	
\$ 12,166,647,000	Interstate switched access revenues
405,579,546,000	Interstate interLATA billed access minutes (originating and terminating)
\$0.0600	Average access revenue per minute of calling
Intrastate Switched Access Revenues (1995)	
\$ 7,398,273,000	State access revenues
80.3%	Switched access proportion of total
\$ 5,941,800,151	Intrastate switched access revenues
144,402,717,000	Intrastate interLATA billed access minutes (originating and terminating)
\$0.0823	Average access revenue per minute of calling
Incremental Costs	
\$0.0068	Incremental cost per minute of calling
\$0.0030	Metering and billing cost per minute of calling (\$0.012 per 4 min. call, for intraLATA toll only)
\$0.0100	Transport cost per minute of calling (for intraLATA toll only)
Contribution at Risk	
\$0.0641	Contribution generated from switched services (per minute)
\$ 23.6 billion	Contribution generated from switched services (aggregate)

Note: We use the same procedures as in *The \$20 Billion Impact of Local Competition in Telecommunications* except: (1) we use updated data on relevant revenues and minutes of use; and (2) as our estimate of marginal costs of switched usage, we now use an estimate of \$0.0034 per minute. This estimate was obtained in Scenario B of Strategic Policy Research, *A New Set of "Top-Down" Incremental Cost Measures*, November 17, 1996. Usage costs are fairly low in Scenario B because a substantial portion of switching costs are assumed to be NTS. The implied usage-sensitive costs are within the FCC's proxy range. But Scenario B also implies that NTS costs of switching are more than twice the FCC proxy costs for switching ports — even at the upper end of the FCC's range.

For economic efficiency, the access rate structure should reflect the structure of cost causation. In particular, costs that depend on number of access lines should be recovered from charges on access lines. Costs that depend on amount of usage should be recovered from usage charges.

To apply this economic principle, the FCC would first determine which costs depend on number of lines and which costs depend on usage. Part of this task is easy: CCL revenues are designed to recover costs associated with access lines. It is apparent that these costs relate to access lines and do not depend on usage. Nevertheless, the costs are now recovered from usage charges. For economic efficiency, they should be recovered from charges on access lines.

The Commission observes in the *Notice* that a substantial portion of switching costs depend on access lines, rather than usage.²⁶ Such costs are currently identified as "traffic-sensitive" (TS), but that is a misnomer. It is well understood that the costs of line cards and the main distributing frame are primarily NTS. In addition, many other switching costs (*e.g.*, the cost of the switching matrix) depend substantially on number of lines rather than amount of usage. Prior to the AT&T divestiture, the Joint Board determined that 75 percent of the costs of digital switches were non-traffic sensitive; *i.e.*, dependent on access lines rather than usage. We use the Joint-Board ratio to determine the fraction of mislabeled TS costs that should be recovered from charges on access lines rather than usage charges.

We apply the 75-25 ratio to total costs, which include nonincremental as well as incremental costs. Efficient Ramsey pricing requires that nonincremental costs be recovered primarily from the less elastic service, which is access lines.

Using the Joint-Board ratio, we conclude that all of CCL costs plus 75 percent of TS costs should be recovered through line-based charges. This amounted to \$9.665 billion in 1995 in the federal jurisdiction. It is equivalent to \$0.023 per (originating plus terminating) access minute of use or \$5.43 per access line per month.²⁷ Stated alternatively, economic cost recovery in the federal

²⁶ See *Notice of Proposed Rulemaking*, ¶¶ 71-73.

²⁷ The revenue figure was derived using rate and minute-of-use data from the Federal-State Joint Board *Monitoring Report* (CC Docket No. 87-339), May 1995, Table 5.13. Weighted originating and terminating CCL per-minute rates were multiplied by 1995 originating and terminating CCL minutes of use. The product was then added to 75 percent of traffic-sensitive per-minute rates multiplied by 1995 local switching minutes of use. Rates reflect those effective July 1, 1996. The access line figures were taken from the FCC's *Preliminary Statistics of Communications* (continued...)

jurisdiction would involve reductions of \$0.046 per minute of use (access at each end) in usage-based charges and imposition of access line fees equivalent to \$5.43 per minute on average.

VI. The Solution in Theory

The pricing dilemma telecommunications policymakers confront can be simply summarized:

- (1) Under current arrangements, users have both the incentive and, increasingly, the ability to economize on their purchases and substitute more economical alternatives for LEC-supplied access services.
- (2) Both political and economic constraints limit the feasibility of LECs' efficiently repricing the services they offer in a manner consistent with full cost recovery.

This diagnosis implies that policymakers "can't get there from here." One response to this dilemma has been to try to redefine the terms of the problem in such a manner as to render it more remediable. Thus, it is suggested that subsidies to support universal service may be reduced without reducing universal service and that costs of providing services can be reduced consistent with the maintenance of an acceptable quality service.

We do not necessarily reject all the possibilities that may inhere in these approaches. Nevertheless, we would observe that the cost recovery problem is extremely large — \$24 billion per year by our estimate. Even if one were highly optimistic about the payoffs from redefining the problem — which we are not — grave difficulties would still remain.²⁸ It is hard not to be skeptical about these types of possibilities when, for example, universal service reforms promising the largest potential payoffs in terms of savings (*viz.*, subsidies targeted *exclusively* to needy individuals) are politically ruled out at the outset. At the same time, the reality is that, as a consequence of previous regulatory decisions, large amounts of costs *are* currently assigned for recovery in the federal regime. Unless costs are reassigned for recovery elsewhere, authentic solutions must come effectively to

²⁷ (...continued)
Common Carriers, released July 1996, p. 149.

²⁸ We suspect that efforts to define the problem away will likely exacerbate difficulties rather than produce effective remedies. We have previously noted the adverse consequences for universal service likely to be contingent upon governmental abrogation of historical cost-recovery commitments. One predictable economic consequence of cost controls (*e.g.*, through the use of unrealistic proxy models) is degradation of service quality.

grips with the reality of recovery requirements and permit effective recovery of assigned recovery burdens.

In our view, certainly a more plausible and realistic “off-loading” reform strategy²⁹ is to increase the federal SLC. The objective would be to increase the amount of direct cost recovery from consumers. This approach possesses considerable economic merit. The implementation of SLCs in the 1980s produced substantial economic benefits. Unfortunately, SLCs were not indexed for inflation so their real value has been gradually eroded.³⁰ In addition, the original SLC reform was not fully implemented, but capped at \$3.50 per month for residence customers and \$6 for businesses.

Simply increasing the value of SLCs to reach equivalence with their original value would contribute substantially to a resolution of the recovery problem. In this case, modest additional revisions in tariffing arrangements and subsidy support programs would likely suffice to produce a workable solution.

In our view, the only significant problem with a SLC-based remedy is its vulnerability to demagogic attack. At least one FCC Commissioner has characterized SLCs as the “third rail” of telecommunications policymaking — the implication being that anyone foolish enough to grab the SLC as a solution to the pricing problem is very likely to perish (painfully).

It is worth noting that those regulators who did utilize SLCs to implement a more efficient pricing scheme not so long ago are alive and well. They can justly claim credit for the very large economic benefits estimated to have been produced by SLCs and rate rebalancing (a great micro-economic success story). Nevertheless, current regulators appear to have little enthusiasm for increasing SLCs.³¹ Their outlook is perhaps not surprising. The Commissioner who drew the “third rail” metaphor undoubtedly has a point. In the court of public opinion, where having to explain is often to have already lost, SLCs are a hard sell. Consumers “see” the higher prices they have to pay, but may fail to perceive the cost savings embodied in the prices they pay for goods and services embodying telecommunications inputs whose prices fall as higher SLCs are implemented.

²⁹ We say “realistic” in terms of authenticity by way of offering a genuine solution. We presently acknowledge the existence of political constraints that limit “realism” in terms of viability.

³⁰ In 1985 dollars, the current cap on SLCs amounts to only \$2.40 per month for residents and \$4.20 per month for business.

³¹ The incumbent Chairman of the FCC is apparently the proverbial exception who proves the rule.

Make no mistake — we certainly favor SLC increases and believe they likely have a critical role to play in successful reform. At the same time, we understand that SLC increases may well not be in the offing. If SLCs are increased only modestly — or not at all, as recently recommended by the Joint Board³² — one must necessarily look to other types of reforms to carry much of the load.

It is useful to consider specifically how SLCs and rate rebalancing helps solve the pricing problem. We can then try to identify other courses of action capable of producing comparable results.

The SLC/rate-rebalancing strategy has three components:

- (1) Usage-insensitive costs are recovered on a more usage-insensitive basis;
- (2) At the margin, charges for *additional* usage are lowered toward marginal costs, thus promoting efficient expansion of output, consistent with recovery of costs; and
- (3) Relatedly, charges that individual users pay are more closely matched to the costs they cause to be incurred.³³

The SLC/access-charge regime is one of a variety of two-part (or multipart) tariff structures that can address the pricing problem posed in telecommunications. This particular solution was one synthesized by the government. For that reason, it necessarily involves a fairly simple/crude structure with little differentiation.³⁴ It is easy to conceive of more sophisticated schemes that would produce superior performance. Indeed, long-distance carriers *currently* build much more sophisticated tariffing structures on top of this basic charging superstructure.³⁵

³² *Recommended Decision* by the Federal-State Joint Board (CC Docket No. 96-45), adopted November 7, 1996, released November 8, 1996.

³³ In particular, costs are not “overrecovered” from heavy end users who often possess the best competitive alternatives. At the same time, usage-insensitive costs which are incurred simply to supply the *option* of use are recovered directly to a greater extent. This means, for example, that end users, who rely primarily on competitive alternatives and use the public network as a backup capability, must nevertheless pay charges which help recover the line and other capacity costs they cause to be incurred and would not otherwise have to pay to cover.

³⁴ The FCC bases prices primarily on fully-distributed costs (FDCs). Basing prices on FDCs has been strongly criticized by economists and is especially inappropriate in competitive markets. Furthermore, even within the domain of FDCs, the FCC’s formulae are overly simplistic. They could be modified better to reflect cost causation. (See, for example, F.G. McKennedy’s letter of October 10, 1996 to J. Schlichting.) The formulae should be modified if the FCC continues to use FDC pricing. We would argue, however, that pricing flexibility is a better approach than fine-tuning of FDC pricing.

³⁵ The IXC’s offer a bewildering array of two-part or multipart tariffs customized to the demands of particular

(continued...)

The telecommunications industry has substantial usage-insensitive (fixed) costs. It thus does not suffice to set prices at marginal costs, which may be low along particular output dimensions (a minute of use, an additional access line, *etc.*). The cost of the overall supply capability is *not* simply the sum of the costs of the individual outputs. Thus, prices must be set to recover some costs which are not incremental or are incremental only in the broadest sense of the term.³⁶

The economically optimal rate structure for an industry with this type of cost configuration is likely to be a *family* (probably a very *extended* family) of two-part or multipart tariffs. Such tariffs confront different end users with a choice of service packages. Packages range from plans with relatively high fixed-charges and low usage-charges to ones with relatively low fixed-charges and high usage-charges.³⁷ Such a family of service offerings can be skillfully constructed to improve economic efficiency. In particular, service offerings can embody volume discounts that simultaneously afford heavy end users the opportunity and incentive to expand usage consistent with recovery of marginal costs, while nevertheless *reducing* the fixed-cost burden that remains for recovery in charges to other end users. In other words, this type of price structure can be consistent with both efficient network utilization and equitable cost recovery.³⁸

Since light end users can *benefit* from this type of pricing arrangement, one can persuasively argue that it is not *unreasonably* discriminatory. The discrimination is economically reasonable precisely because it minimizes inefficient distortions (arising from the necessity to depart from marginal-cost pricing) and thereby maximizes economic welfare. It thereby reduces the cost burdens light end users are required to bear. It would certainly seem more unreasonable to adopt a pricing scheme that makes light end users bear an absolutely larger cost burden than is required for overall system viability.

³⁵ (...continued)
types of users and individual customers.

³⁶ See William J. Baumol and J. Gregory Sidak, *Toward Competition in Local Telephony* (The MIT Press and The American Enterprise Institute for Public Policy Research, 1994).

³⁷ Note that for internalizing the universal service externality, maintaining network *connectivity* is key and that this type of tariff structure can operate effectively to ensure connectivity by offering plans with low fixed charges.

³⁸ Note that light users would confront a higher fixed-cost recovery burden were heavy users led to economize on the use of the network and substitute competitive alternatives.

How can this kind of rate structure be implemented? The broad outlines of an effective implementation strategy are fairly clear. One must find ways to afford carriers substantially greater *flexibility* to configure efficient pricing arrangements.³⁹ In this regard, a “market-based” approach to reform appears to be a necessity. It is only through this type of approach that all economically relevant information about variations and changes in demand and cost conditions can be fully exploited. The government can “prescribe” efficient outcomes in only the broadest of outlines.

The SLC solution involves taking a portion of the usage-insensitive cost burden⁴⁰ and apportioning it directly among users on a per-line basis. As we have suggested, increased SLCs should play an important role in any sensible approach to rate reform. Indeed, it would be sensible for states, if they were assigned greater responsibility for cost recovery under separations reform, to implement state SLC equivalents.

To the extent SLC increases prove infeasible, we also need to consider other reforms. For example, one component of a reform program might entail assignment of cost-recovery responsibility on a lump-sum basis to carriers with substantial flexibility for the manner in which assigned costs are recovered. Carriers should be afforded substantial flexibility to create pricing plans that accomplish cost recovery in an efficient manner. In this regard, “bulk-billing” proposals may make economic sense, but it is incumbent that under such an approach cost recovery responsibility not be apportioned in a manner similar to the existing regime (*i.e.*, on the basis of switched minutes of use).

If burdens were assigned on the basis of switched minutes, IXC's would still have an incentive to economize on their use of LEC-supplied switched access. An individual IXC could still reduce its contributions to the bulk-billing pool by inducing its customers *not* to use LEC switched access. At present, IXC's often quote long-distance prices that are added on to access charges. Under such arrangements, the cost savings from using less-expensive access are directly passed on to customers. IXC's could thus profitably offer *additional* discounts to customers who do not use LEC switched access. The discounts would exceed direct-access payments and would also include a share of

³⁹ In this regard, note that the SLC solution is comparatively rigidly structured. As previously noted, long-distance carriers are not rigidly constrained in how they package their service offerings and they offer a wide variety of service packages with different charging arrangements.

⁴⁰ As previously noted, this burden may arise from any number of sources — costs of NTS factor inputs, explicit universal service subsidy support, depreciation reserve deficiencies, *etc.*

payments to the bulk-billing pool. Most likely, offering such discounts would become part of IXC's standard competitive tactics.

In more general terms, bulk-billing (on the basis of switched minutes) does not really address the fundamental problem: inefficient recovery of NTS costs from usage charges. Under this type of approach, payments are still recovered on a usage sensitive basis. Although the institutions differ, *fundamental incentives for inefficient behavior remain the same* as under the current system. Thus, the same ill consequences of perpetuating the current pricing scheme would likely persist were bulk-billing on the basis of switched minutes of use implemented as a long-term solution/non-solution.

VII. Some Specific Policy Fixes

We have emphasized the problems with the current inefficient pricing structure and evaluated how large the necessary price changes are actually likely to be in aggregate terms. We now consider in more specific terms how the necessary changes might be implemented. In our view, there is likely to be no unique solution — at least one widely regarded as politically viable. We consider three specific approaches, all of which are discussed in the *Notice*: rebalancing rates and recovering NTS costs through SLCs or SLC equivalents; passing NTS costs on to IXCs on the basis of lines; and a market-based approach that would afford LECs flexibility about how to recover NTS costs. Elements of each of these approaches can contribute to a workable solution. Obviously to the extent the first is not viable, greater reliance must be placed on the other two.

A. Rebalancing via SLC (or SLC-Equivalent) Increases

Increasing SLCs or SLC equivalents is the most direct way to deal with the problem of inefficient pricing. Such a policy means that NTS costs (including legacy and universal-service costs by nature insensitive to traffic variations) would be recovered on the basis of lines — not minutes of interstate use. The application of such a policy would lead to a very substantial reduction in interstate switched access charges — our estimate is \$0.023 per originating plus terminating minute of use. There would be an associated increase in line-based charges recovered in the interstate jurisdiction. We estimate that the line-based charges would amount to \$5.43 per month for each business and residential access line. Economic efficiency would require that these costs be recovered disproportionately from residents, since (longer) residential loops are, on average, more costly than

(shorter) business loops. Economic efficiency would be further increased if LECs geographically deaveraged SLCs. Efficient SLCs would be lowest in urban areas and highest in rural areas.

This policy would not be politically popular. It would require strong leadership and advocacy. At the same time, it would enormously increase the economic efficiency of the industry and make a significant contribution to the productivity of the U.S. economy. In this regard, efficient pricing policies pursued in the mid-1980s (separations reform and imposition of subscriber line charges) contributed substantially to the excellent performance of the industry since then. (This excellent performance is often cited by LEC adversaries in the context of arguing for higher X-factors for productivity offsets.)

Line-based charges presumably could not be increased by such large amounts all at once. A transition period would be required to avoid dislocations. Even with a transition period, the requisite price increases may still be too large to pass political muster. In that case, regulators must consider alternative approaches to produce a genuine solution.

B. Pass NTS Costs on to IXC's on the Basis of Lines

Another approach is to pass NTS costs on to IXC's on the basis of lines. This approach was recommended by the Joint Board.⁴¹ The most practical way is probably to impose a charge on presubscribed lines. This method is already used for the High Cost fund. The charges would, however, have to be much larger in order to achieve efficient pricing consistent with full cost recovery. We have previously observed that economic efficiency would be well served if switched access charges were reduced by 82.5 percent. The lost LEC revenue could be recovered by imposing an average charge of \$5.43 per month per presubscribed line.

Needless to say, IXC's would not absorb these charges. They would pass the charges on to their customers. The advantage of this approach is that IXC prices are already subject to streamlined regulation. Consequently, IXC's possess substantial operating flexibility and associated freedom to pass on NTS costs in an efficient manner. In particular, IXC's could choose among the following options:

- A fixed monthly charge;
- A minimum bill;
- Two-part or multipart tariffs; and/or

⁴¹ See *Notice of Proposed Rulemaking*, ¶ 776.

- Higher usage charges.

An IXC might use more than one — perhaps even all — of these methods to recover NTS costs. IXCs have the right incentives to recover these costs in an efficient manner. In particular, they will try to avoid imposing charges on customers who would respond by curtailing demand (*e.g.*, by using a competitor). IXCs can also be expected to avoid increasing individual prices too rapidly. Even loyal customers often respond to excessive rate increases by changing suppliers.

The Commission observes that end users may presubscribe to one IXC and then use other carriers by dialing around.⁴² In that case, the IXC may lose money on the customer; *i.e.*, it may not get enough profit from customer's interexchange usage to cover the NTS costs. IXCs can fully insulate themselves from this risk by passing on NTS costs as fixed monthly charges. If they do so, the result will be similar to an increase in the SLC. However, competitive considerations may cause IXCs to use alternative recovery mechanisms; *e.g.*, volume discount schedules. The end result may be both more efficient and more politically acceptable than an increase in the SLC.

Charges applied to presubscribed lines would fall disproportionately on AT&T. That result is not inappropriate. A disproportionately large share of line-based costs are caused by end users who presubscribe to AT&T. Furthermore, AT&T has substantial flexibility in terms of how to recover the additional costs. Since its rivals would be proportionally burdened, it faces no competitive disadvantage in passing on the costs. Any other carrier that seeks to take customers away from AT&T would also have to pay (and presumably pass on) the line-based cost.

C. Pricing Flexibility for LECs

Another alternative reform tack is a market-based approach; *viz.*, affording LECs greater pricing flexibility. Pricing flexibility is a good way to mitigate the damage from (regulatorily-imposed) inefficient pricing. Under this approach, LECs would be given broad flexibility to develop efficient methods for recovery of NTS costs that are not recovered from line-based charges.

In economic terms, NTS costs that are not recovered from line charges should be regarded as fixed costs, because they do not depend on interstate usage. Economic efficiency requires that such costs be recovered on the basis of demand elasticities (*i.e.*, to a relatively greater extent from customers and services with relatively inelastic demands) and reflect variations and changes in costs to the extent it is economic to do so. Given flexibility, LECs would have strong incentives to

⁴² See Notice of Proposed Rulemaking, ¶ 60.

recover fixed costs in an economically efficient manner. In particular, they would obviously seek to avoid imposing charges on customers who would respond to the charges by significantly curtailing demand.

The following example illustrates how pricing flexibility could work in a simple price-cap regime:

- Suppose that the switched access charge, calculated by standard procedures, were \$0.03 per minute for a particular LEC. The LEC could be allowed to have a higher general charge, up to a maximum of (say) \$0.035 per minute. The LEC would be allowed to offer discounts to groups of "similarly-situated" end users. The LEC would be required to demonstrate that its average revenues, net of discounts, amounted to no more than \$0.03 per minute.

Under this proposal, the LEC could offer discounts to end users who would curtail purchases if they did not get a discount. By offering the discount, the LEC may succeed in inducing the end user not to adopt a less-efficient alternative than LEC switched access.

It thus makes economic sense to afford LECs substantial freedom to recover fixed costs. Nevertheless, the Commission must still set certain limits. Economic theory supplies relevant standards for defining a zone of reasonableness for the exercise of pricing discretion by carriers. In general, pricing should be presumed economically reasonable if charges cover incremental costs and do not exceed stand-alone costs. Pricing outside the economic zone of reasonableness should require economic justification or otherwise be disallowed. Other noneconomic (*viz.*, *e.g.*, legal) standards of reasonableness may also apply. Regulators should, however, take care that the application of noneconomic standards not result in economic harm, particularly to those who allegedly, but probably do not, actually benefit from the application of such standards.⁴³

The Commission proposes a variety of conditions that must be met in order for the LECs to get pricing flexibility.⁴⁴ We believe that affording LECs pricing flexibility is good public policy,

⁴³ For a fuller exposition of relevant economic standards for pricing reasonability, see John Haring and Jeffrey H. Rohlfs, *Comments on Pricing Flexibility Issues*, prepared on behalf of BellSouth Telecommunications for submission before the Federal Communications Commission, *In the Matter of Price Cap Performance Review for Local Exchange Carriers*, CC Docket No. 94-1, January 10, 1996; and *Comments on "Transition Issues,"* prepared for BellSouth for submission at the FCC in CC Docket No. 94-1, *In the Matter of Price Cap Performance Review for Local Exchange Carriers*, April 1994. See also, Baumol and Sidak, *op. cit.*

⁴⁴ See Notice of Proposed Rulemaking, ¶¶ 168-76.

regardless of whether any or all of these conditions are met. Even under conditions of pure monopoly, pricing flexibility *within a zone of reasonableness* can be expected to improve economic efficiency. It is all the more valuable if the Commission is politically unable to achieve efficient pricing through more direct means (*viz.*, SLC increases). And arguments about monopoly are essentially mooted by the requirement of unbundled element offerings priced at cost.

Requiring the Phase 1 conditions may be defensible with respect to long-term prices or contracts. Competition may be deterred, if such deals are consummated before competitors are able to offer service. However, efficient competition cannot be foreclosed as a result of geographic deaveraging or volume discounts (to end users) — so long as prices remain within the range of reasonableness. The Commission should immediately afford flexibility to deaverage rates and offer volume discounts and not delay until the Phase 1 conditions are met.

We understand that the Commission may wish to afford incentives for LECs to facilitate interconnection of competing local exchange carriers. However, such incentives may be unnecessary here. LECs are required by the Act to meet most of the conditions proposed in the *Notice*. In addition, the RBOCs already have incentives to facilitate interconnection in order to meet the check list for entry into the interLATA market.

Specifying conditions for pricing flexibility entails significant costs. It creates regulatory barriers to the achievement of economic efficiency. Interested parties that benefit from inefficient LEC pricing can be expected to use the resulting regulatory process (to determine whether the conditions have been met) strategically to maximize regulatory delays. This type of outcome is best avoided by setting up regulatory processes only where the processes are really necessary to prevent abuse. It is far from clear that establishing a new layer of regulatory process is necessary to ensure that the Phase 1 conditions are met on a timely basis.

VIII. Conclusion

The problem is growing and the clock is ticking. Current access prices recover large amounts of NTS, legacy and subsidy costs. Subsidy costs may become larger as additional universal public services are mandated. Failure to recover legacy costs will have controversial consequences and send unfortunate signals. At the same time, there is feverish competitive activity and regulatory